

OPHIDIAN VERTEBRÆ FROM CAVE DEPOSITS AT MARMOR QUARRY.

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IN October, 1924, in company with Mr. Samuel Evans, manager, and Mr. W. Goulding, engineer, I had an opportunity of examining several pockets of cave earth at the Marmor Quarry, N.C. Line, Queensland. Owing to extensive excavations, this cave earth is now exposed, although at a depth of about 60 feet from the original surface of the limestone hill.

Whilst working through one of these pockets four proœalian vertebræ with hemispheroid cups and balls of the ophidian type were unearthed. Three of these were from the pre-anal series, and one, as shown by the paired articular facets for the hypapophyses, is from the caudal series. Judging from the slight development of the hypapophyses, no one of the three pre-anals is from the anterior region of the body. Unfortunately these specimens are all imperfect, but the contours are sufficiently preserved to demonstrate their close affinity with *Python variegatus*, the common carpet snake of to-day.

In the largest specimen the maximum diameter at extremities of the anterior zygapophyses is 14 mm. The maximum height is 10 mm., but the neural spine is very incomplete. The diameter of the cup is 4.5 mm. The zygapophyseal facets are strongly developed as in the Pythons, and do not terminate in supplementary lateral processes. The zygosphene is relatively stout. Two vascular foramina are present in the recesses of the zygantrum. The contours of the centra and of the zygapophyses are closely comparable with those of a carpet snake about 6 feet in length. The articular diapophyses are convex oval surfaces extending from the ventral border of the cup to the lower border of the anterior zygapophyses. *Reg. No. F. 1733.*

Thanks to the researches of Owen, E. D. Cope, de Rochebrune, O. C. Marsh, R. Lydekker, and other writers there is considerable literature on the status of ophidian remains, and it is evident that well-preserved vertebræ may show diagnostic characters. Vertebræ of Pythons have been recorded from the Pleistocene cave-deposits of India, whilst species of *Palæopython* (included in Owen's *Paleryx* by Lydekker) have been described from Tertiary deposits in France and England. Cope and Marsh have described Boidæ from America. Lydekker has recorded¹ six vertebræ from the Wellington Caves of New South Wales, which were compared with *Nardoa* and *Liasis*, but not generically determined. The presence of a prominent hæmal carina on these is a distinctive feature compared with the Marmor specimens.

¹ Lydekker, Cat. Fos. Rept. Amph., B.M., Part 1, 1888, p. 256.

The discovery of remains of *Thylacoleo*, *Thylacinus*, and *Sarcophilus* in the same deposits at Marmor is an interesting point.

In order to institute comparisons with the five main groups of ophidians found in Australia to-day (eliminating the Typhlopidae for obvious reasons), the characters of available vertebræ were studied. As this proved to be of some interest, the results are set out in the following table:—

Python.—Neural spines hatchet-shaped, produced posteriorly.

Anterior zygapophyses with no lateral processes beyond the flat articular surfaces.

Hypapophyses only prominent in anterior region, the great majority of the pre-anal series being reduced to rounded carinæ, the anterior portion of which is formed by the ventral edge of the cup rim.

Dendrophis.—Neural spines rectangular laminæ, being slightly emarginated.

Anterior zygapophyses produced beyond and slightly below the articulating surfaces as pointed lateral processes.

Hypapophyses prominent in anterior region, but they are less developed towards the mid-dorsal region where they appear only as rounded carinæ.

Boiga (Dipsadomorphus).—Neural spines rectangular, being very slightly emarginated.

Anterior zygapophyses produced beyond and slightly below the articulating surface as short, pointed lateral processes.

Hypapophyses prominent in anterior vertebræ but only present as rounded carinæ on main portion of pre-anal series.

Demansia and Pseudechis.—Neural spines emarginated anteriorly and posteriorly at centre of laminæ, the upper edges projecting.

Anterior zygapophyses produced beyond and slightly below the articulating surfaces as marked, pointed lateral processes.

Hypapophyses prominent as oblique processes throughout the body length; not reduced to rounded carinæ.

Distira.—Neural spines hatchet-shaped, upper edge produced posteriorly owing to emargination of laminæ.

Anterior zygapophyses produced beyond and slightly below the articulating surfaces as marked, pointed lateral processes.

Hypapophyses prominent as oblique processes on the anterior part of the body, less developed in the mid-dorsal region, and towards the anal region they subside into well-defined carinæ.

In the mid-dorsal vertebræ of the relatively large *Typhlops ligatus*, examined, the neural spines and hypapophyses are undeveloped. The pre-zygapophyses are accompanied by tubular lateral processes (diapophyses), which are readily detached from the ribs.